

Applicant(s): Bonutti, Peter M
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Amendments to the Claims

1-170. (Cancelled)

171. (Previously presented) A method of tracheal intubation, said method comprising the steps of positioning a plurality of detectors in an array adjacent to an outer surface of a patient's neck, locating a positioning apparatus relative to the patient's trachea, moving a guide rod relative to the patient's respiratory system along an insertion path which extends from the patient's pharynx, through the patient's larynx and into the patient's trachea, emitting an output at a leading end portion of the guide rod as the guide rod moves along the insertion path, detecting the output emitted at the leading end portion of the guide rod with detectors of the plurality of detectors, determining the position of the leading end portion of the guide rod along the insertion path as a function of the relationship of the emitted output detected by one of the plurality of detectors to the emitted output detected by another detector of the plurality of detectors, moving a tracheal tube relative to the patient's respiratory system along the insertion path by moving the tracheal tube along the guide rod, emitting an output at a leading end portion of the tracheal tube as the tracheal tube moves along the insertion path, detecting the output emitted at the leading end portion of the tracheal tube with detectors of the plurality of detectors, and determining the position of the leading end portion of the tracheal tube along the insertion path as a function of the relationship of the emitted output detected by one detector of the plurality of detectors to the emitted output detected by another detector of the plurality of detectors.

172. (Original) A method as set forth in claim 171 wherein said step of locating the positioning apparatus relative to the patient's trachea includes engaging the patient's Adam's apple with the positioning apparatus.

173. (Original) A method as set forth in claim 172 wherein said step of positioning a plurality of detectors in an array adjacent to an outer surface of the patient's neck includes positioning the detectors adjacent to the patient's Adam's apple.

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174. (Original) A method as set forth in claim 171 further including the steps of providing a display illustrating a position of the leading end portion of the guide rod relative to the patient's trachea and a position of a leading end portion of the tracheal tube relative to the patient's trachea during at least a portion of said step of moving the tracheal tube along the guide rod.

175. (Original) A method as set forth in claim 171 further including the step of providing a display illustrating a position of the leading end portion of the guide rod relative to the patient's trachea during at least a portion of said step of moving the guide rod relative to the patient's respiratory system.

176. (Cancelled)

177. (Previously presented) A method of tracheal intubation, said method comprising the steps of positioning a plurality of detectors in an array adjacent to an outer surface of a patient's neck, moving a tracheal tube relative to the patient's respiratory system along an insertion path which extends from the patient's pharynx, through the patient's larynx and into the patient's trachea, emitting an output at a leading end portion of the tracheal tube as the tracheal tube moves along the insertion path, detecting the output emitted at the leading end portion of the tracheal tube with detectors of the plurality of detectors, and determining the position of the leading end portion of the tracheal tube along the insertion path as a function of the relationship of the emitted output detected by one detector of the plurality of detectors to the emitted output detected by another detector of the plurality of detectors,

wherein said step of emitting an output at a leading end portion of the tracheal tube includes emitting light at the leading end portion of the tracheal tube.

178. (Cancelled)

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179. (Previously presented) A method of tracheal intubation, said method comprising the steps of positioning a plurality of detectors in an array adjacent to an outer surface of a patient's neck, moving a tracheal tube relative to the patient's respiratory system along an insertion path which extends from the patient's pharynx, through the patient's larynx and into the patient's trachea, emitting an output at a leading end portion of the tracheal tube as the tracheal tube moves along the insertion path, detecting the output emitted at the leading end portion of the tracheal tube with detectors of the plurality of detectors, and determining the position of the leading end portion of the tracheal tube along the insertion path as a function of the relationship of the emitted output detected by one detector of the plurality of detectors to the emitted output detected by another detector of the plurality of detectors,

wherein said step of moving the tracheal tube relative to the patient's respiratory system along an insertion path includes determining when the leading end portion of the tracheal tube approaches a junction between the patient's respiratory system and the patient's esophagus, and steering the leading end portion of the tracheal tube away from the patient's esophagus by applying force against the leading end portion of the tracheal tube.

180. (Original) A method as set forth in claim 179 wherein said step of steering the leading end portion of the tracheal tube includes expanding an expandable element to urge the leading end portion of the tracheal tube in direction away from an entrance to the patient's esophagus.

181. (Original) A method of tracheal intubation, said method comprising the steps of positioning a plurality of emitters in an array adjacent to an outer surface of a patient's neck, moving a tracheal tube relative to the patient's respiratory system along an insertion path which extends from the patient's pharynx, through the patient's larynx and into the patient's trachea, emitting an output from the emitters of the plurality of emitters as the tracheal tube moves along the insertion path, detecting the output emitted by at least some of the emitters with a detector connected with a leading end portion of the tracheal tube as the tracheal tube moves along the

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insertion path, and determining the position of the leading end portion of the tracheal tube along the insertion path as a function of the output from the plurality of emitters detected by the detector.

182. (Original) A method as set forth in claim 181 wherein said step of positioning a plurality of emitters in an array adjacent to an outer surface of the patient's neck includes positioning a plurality of magnets which emit magnetic fields adjacent to the outer surface of the patient's neck.

183. (Original) A method as set forth in claim 181 further including the steps of locating a positioning apparatus relative to the patient's trachea, moving a guide rod relative to the patient's respiratory system along an insertion path which extends from the patient's pharynx, through the patient's larynx and into the patient's trachea, detecting the output emitted by at least some of the emitters with a detector connected with a leading end portion of the guide rod as the guide rod moves along the insertion path, and determining the position of the leading end portion of the guide rod along the insertion path as a function of the output emitted from the plurality of emitters detected by the detector, said step of moving the tracheal tube relative to the patient's respiratory system along the insertion path includes moving the tracheal tube along the guide rod.

184. (Original) A method as set forth in claim 183 wherein said step of locating the positioning apparatus relative to the patient's trachea includes engaging the patient's Adam's apple with the positioning apparatus.

185. (Original) A method as set forth in claim 184 wherein said step positioning a plurality of emitters in an array adjacent to an outer surface of the patient's neck includes positioning the emitters adjacent to the patient's Adam's apple.

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186. (Original) A method as set forth in claim 183 further including the steps of providing a display illustrating a position of the leading end portion of the guide rod relative to the patient's trachea and a position of a leading end portion of the tracheal tube relative to the patient's trachea during at least a portion of said step of moving the tracheal tube along the guide rod.

187. (Original) A method as set forth in claim 183 further including the step of providing a display illustrating a position of the leading end portion of the guide rod relative to the patient's trachea during at least a portion of said step of moving the guide rod relative to the patient's respiratory system.

188. (Original) A method as set forth in claim 181 further including the step of providing a display illustrating a position of a leading end portion of the tracheal tube relative to the patient's trachea during at least a portion of said step of moving the tracheal tube relative to the patient's respiratory system.

189. (Original) A method of tracheal intubation, said method comprising the steps of positioning an emitter which provides an output adjacent to an outer surface of a patient's neck, moving a guide rod relative to a patient's respiratory system along an insertion path which extends into the patient's trachea, said step of moving the guide rod along the insertion path being performed with a detector connected with a leading end portion of the guide rod, detecting the output emitted from the emitter with the detector as the guide rod moves along the insertion path, interrupting movement of the guide rod along the insertion path in response to the detector detecting that the leading end portion of the guide rod is in a desired position relative to the patient's trachea, moving a tracheal tube along the guide rod, said step of moving the tracheal tube along the guide rod being performed with a detector connected with a leading end portion of the tracheal tube, detecting the output emitted from the emitter with the detector connected with the leading end portion of the tracheal tube as the tracheal tube moves along the guide rod, and interrupting movement of the tracheal tube along the guide rod in response to the detector

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connected with the leading end portion of the tracheal tube detecting that the leading end portion of the tracheal tube is in a desired position relative to the patient's trachea.

190. (Original) A method as set forth in claim 189 further including the step of engaging the patient's Adam's apple with a positioning apparatus, said step of moving the guide rod along the insertion path being performed while positioning a portion of the guide rod relative to the insertion path with the positioning apparatus.

191. (Original) A method as set forth in claim 190 further including the step of separating the guide rod from the positioning apparatus prior to performing the step of moving the tracheal tube along the guide rod.

192. (Original) A method of tracheal intubation, said method comprising the steps of positioning a detector adjacent to an outer surface of a patient's neck, moving a guide rod relative to a patient's respiratory system along an insertion path which extends into the patient's trachea, said step of moving the guide rod along the insertion path being performed with an emitter which provides an output connected with a leading end portion of the guide rod, detecting the output emitted from the emitter with the detector as the guide rod moves along the insertion path, interrupting movement of the guide rod along the insertion path in response to the detector detecting that the leading end portion of the guide rod is in a desired position relative to the patient's trachea, moving a tracheal tube along the guide rod, said step of moving the tracheal tube along the guide rod being performed with an emitter which provides an output connected with a leading end portion of the tracheal tube, detecting the output emitted from the emitter with the detector as the tracheal tube moves along the guide rod, and interrupting movement of the tracheal tube along the guide rod in response to the detector detecting that the leading end portion of the tracheal tube is in a desired position relative to the patient's trachea.

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193. (Original) A method as set forth in claim 192 further including the step of engaging the patient's Adam's apple with a positioning apparatus, said step of moving the guide rod along the insertion path being performed while positioning a portion of the guide rod relative to the insertion path with the positioning apparatus.

194. (Original) A method as set forth in claim 193 further including the step of separating the guide rod from the positioning apparatus prior to performing the step of moving the tracheal tube along the guide rod.

195-199. (Cancelled)

200. (Previously presented) An apparatus for use in tracheal intubation, said apparatus comprising a tracheal tube, sensor means connected with said tracheal tube for determining the position of a leading end portion of said tracheal tube during movement of said tracheal tube along an insertion path which extends from a patient's pharynx, through the patient's larynx and into the patient's trachea, steering means connected with a leading end portion of said tracheal tube for applying force against the leading end portion of said tracheal tube during movement of said tracheal tube along the insertion path, a positioning assembly which is engagable with the patient's Adam's apple to locate said positioning assembly relative to the patient's body, and a guide surface connected with said positioning assembly to guide movement of said tracheal tube relative to the patient's body.

201. (Previously presented) An apparatus for use in tracheal intubation, said apparatus comprising a tracheal tube, sensor means connected with said tracheal tube for determining the position of a leading end portion of said tracheal tube during movement of said tracheal tube along an insertion path which extends from a patient's pharynx, through the patient's larynx and into the patient's trachea, and steering means connected with a leading end portion of said tracheal tube for applying force against the leading end portion of said tracheal tube during

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movement of said tracheal tube along the insertion path, wherein said sensor means includes an emitter which provides an output and a detector which responds to the output from ~~from~~ from said emitter, one of said emitter and detector being connected with the leading end portion of said tracheal tube for movement therewith along the insertion path, the outer of said emitter and detector being disposed adjacent to an outer surface of the neck of the patient during movement of said tracheal tube along the insertion path.

202-204. (Cancelled)

205. (Previously presented) An apparatus for use in tracheal intubation of a patient, said apparatus comprising a tracheal tube which is moveable along an insertion path into a patient's trachea, an emitter which provides an output, and a detector which responds to the output from said emitter, a first one of said emitter and said detector being connected with said tracheal tube for movement therewith along the inserting path, a second one of said emitter and said detector being disposed adjacent to an outer surface of the patient's neck during movement of said tracheal tube along the insertion path, wherein said detector is connected with a leading end portion of said tracheal tube for movement therewith along the insertion path.

206. (Cancelled)

207. (Currently Amended) An apparatus ~~as set forth in claim 202 further including for use in tracheal intubation of a patient, said apparatus comprising a tracheal tube which is moveable along an insertion path into a patient's trachea, an emitter which provides an output, a detector which responds to the output from said emitter, a first one of said emitter and said detector being connected with said tracheal tube for movement therewith along the inserting path, a second one of said emitter and said detector being disposed adjacent to an outer surface of the patient's neck during movement of said tracheal tube along the insertion path, and a positioning assembly which is engagable with the patient's Adam's apple to locate said positioning assembly relative to~~

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the patient's body, and a guide surface connected with said positioning assembly to guide movement of said tracheal tube relative to the patient's body.

208. (Cancelled)

209. (Previously presented) An apparatus for use in tracheal intubation of a patient, said apparatus comprising a tracheal tube which is movable along an insertion path into a patient's trachea; an emitter connected with a leading end portion of said tracheal tube, said emitter being effective to provide an output during movement of said tracheal tube along the insertion path; a plurality of detectors disposed in an array adjacent to the patient's Adam's apple, each detector of said plurality of detectors being responsive to the output from said emitter and means connected with said plurality of detectors for determining the position of the leading end portion of said tracheal tube along the insertion path as a function of outputs from said plurality of detectors during movement of said tracheal tube along the insertion path; and steering means connected with the leading end portion of said tracheal tube for applying force against the leading end portion of said tracheal tube during movement of said tracheal tube along the insertion path.

210. (Previously presented) An apparatus for use in tracheal intubation of a patient, said apparatus comprising a tracheal tube which is movable along an insertion path into a patient's trachea; an emitter connected with a leading end portion of said tracheal tube, said emitter being effective to provide an output during movement of said tracheal tube along the insertion path; a plurality of detectors disposed in an array adjacent to the patient's Adam's apple, each detector of said plurality of detectors being responsive to the output from said emitter and means connected with said plurality of detectors for determining the position of the leading end portion of said tracheal tube along the insertion path as a function of outputs from said plurality of detectors during movement of said tracheal tube along the insertion path; a plurality of expandable elements connected with the leading end portion of said tracheal tube; and means for conducting fluid pressure along said tracheal tube to said expandable elements to effect expansion of said

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expandable elements.

211. (Cancelled)

212. (Currently amended) ~~An apparatus as set forth in claim 208 further including for use~~
in tracheal intubation of a patient, said apparatus comprising a tracheal tube which is movable
along an insertion path into a patient's trachea, an emitter connected with a leading end portion of
said tracheal tube, said emitter being effective to provide an output during movement of said
tracheal tube along the insertion path, a plurality of detectors disposed in an array adjacent to the
patient's Adam's apple, each detector of said plurality of detectors being responsive to the output
from said emitter and means connected with said plurality of detectors for determining the
position of the leading end portion of said tracheal tube along the insertion path as a function of
outputs from said plurality of detectors during movement of said tracheal tube along the insertion
path, and a positioning assembly which is engagable with the patient's Adam's apple to locate
said positioning assembly, and a guide surface connected with said positioning assembly to guide
movement of said tracheal tube relative to the patient's body.

213 (Original). An apparatus for use in tracheal intubation of a patient, said apparatus comprising a tracheal tube which is movable along an insertion path into a patient's trachea, a detector connected with a leading end portion of said tracheal tube for movement therewith along the insertion path, and a plurality of emitters disposed in an array adjacent to the patient's Adam's apple, each emitter of said plurality of emitters being effective to provide an output which is detectable by said detector, and means connected with said detector for determining the position of the leading end portion of said tracheal tube as a function of the output from said plurality of emitters detected by said detector during movement of said tracheal tube along the insertion path.

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214. (Original) An apparatus as set forth in claim 213 further including steering means connected with the leading end portion of said tracheal tube for applying force against the leading end portion of said tracheal tube during movement of said tracheal tube along the insertion path.

215. (Original) An apparatus as set forth in claim 213 further including a plurality of expandable elements connected with the leading end portion of said tracheal tube and means for conducting fluid pressure along said tracheal tube to said expandable elements to effect expansion of said expandable elements.

216. (Original) An apparatus as set forth in claim 213 further including a positioning assembly which is engagable with the patient's Adam's apple to locate said positioning assembly, and a guide surface connected with said positioning assembly to guide movement of said tracheal tube relative to the patient's body.

217. (Original) An apparatus as set forth in claim 213 wherein each emitter of said plurality of emitters includes a magnet which emits a magnetic field, said detectors being responsive to the magnetic field emitted by said magnet of each of said emitters of said plurality of emitters.

218-222. (Cancelled)

223. (Original) A method of tracheal intubation, said method comprising the steps of locating a positioning apparatus relative to a patient's trachea by engaging the patient's Adam's apple with the positioning apparatus, providing a sensor system having a first portion, a second portion and a third portion, positioning the first portion of the sensor system adjacent to the patient's Adam's apple, moving a guide rod relative to the positioning apparatus into the patient's respiratory system along an insertion path with the second portion of the sensor system connected with a leading end portion of the guide rod, said step of moving the guide rod relative to the

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positioning apparatus being performed with the positioning apparatus in engagement with the patient's Adam's apple, determining when the leading end portion of the guide rod is in a desired position relative to the patient's trachea as a function of cooperation between the first portion of the sensor system positioned adjacent to the patient's Adam's apple and the second portion of the sensor system connected with the leading end portion of the guide rod, interrupting movement of the guide rod relative to the positioning apparatus in response to determining that the leading end portion of the guide rod is in the desired position relative to the patient's trachea, thereafter, disengaging the positioning apparatus from the guide rod, moving a tracheal tube along the guide rod into the patient's trachea with the third portion of the sensor system connected with a leading end portion of the tracheal tube, determining when the leading end portion of the tracheal tube is in a desired position relative to the patient's trachea as a function of cooperation between the first portion of the sensor system positioned adjacent to the patient's Adam's apple and the third portion of the sensor system connected with the leading end portion of the tracheal tube, and interrupting movement of the tracheal tube relative to the guide rod in response to determining that the leading end portion of the tracheal tube is in the desired position relative to the patient's trachea.

224. (Original) A method as set forth in claim 223 further including the step of steering the leading end portion of the guide rod as the leading end portion of the guide rod moves along the insertion path by expanding an expandable element connected with the leading end portion of the guide rod.

225. (Previously presented) A method of treating a patient, said method comprising the steps of locating a positioning apparatus relative to a portion of the patient's body by engaging the patient's body with the positioning apparatus, wherein a portion of the positioning apparatus is positioned adjacent to an Adam's apple of the patient, determining a position to which a elongated member is to be moved relative to the positioning apparatus, moving the elongated member into the patient's body while the positioning apparatus is in engagement with the

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patient's body, interrupting movement of the elongated member into the patient's body when the elongated member has moved to the previously determined position relative to the positioning apparatus, and performing a procedure in the patient's body while the elongated member is in the previously determined position relative to the patient's body.

226. (Original) A method as set forth in claim 225 wherein said step of moving an elongated member into the patient's body includes moving at least a portion of the elongated member through a portion of the positioning apparatus which is aligned with an opening in the patient's body.

227. (Original) A method as set forth in claim 225 wherein said step of locating the positioning apparatus relative to a portion of the patient's body includes varying the spatial relationship between first and second portions of the positioning apparatus, said step of determining a position to which the elongated member is to be moved relative to the patient's body includes determining the position as a function of the spatial relationship between the first and second portions of the positioning apparatus after the positioning apparatus has been located relative to the patient's body and when the positioning apparatus is disposed in engagement with the patient's body.

228. (Original) A method as set forth in claim 225 further including the step of disengaging the positioning apparatus from the elongated member prior to performance of said step of performing a procedure in the patient's body, said step of disengaging the positioning apparatus from the elongated member is performed with a portion of the elongated member in the patient's body.

229. (Original) A method as set forth in claim 225 wherein said step of moving a guide rod relative to the positioning apparatus includes sliding the elongated member along a guide surface connected with the positioning apparatus, said method further including separating the

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positioning apparatus from the elongated member while the elongated member extends into the patient's body, and, thereafter, performing said procedure in the patient's body.

230. (Original) A method as set forth in claim 225 wherein said step of engaging a portion of the patient's body with the positioning apparatus includes engaging spaced apart locations on the patient's body with the positioning apparatus.

231. (Previously presented) A method of treating a patient, said method comprising the steps of locating a positioning apparatus relative to a portion of the patient's body by engaging the patient's body with the positioning apparatus, determining a position to which a elongated member is to be moved relative to the positioning apparatus, moving the elongated member into the patient's body while the positioning apparatus is in engagement with the patient's body, magnetically attracting a leading end portion of the elongated member with a magnet disposed outside of the patient's body during performance of said step of moving the elongated member into the patient's body, interrupting movement of the elongated member into the patient's body when the elongated member has moved to the previously determined position relative to the positioning apparatus, and performing a procedure in the patient's body while the elongated member is in the previously determined position relative to the patient's body.

232. (Previously presented) A method of treating a patient, said method comprising the steps of locating a positioning apparatus relative to a portion of the patient's body by engaging the patient's body with the positioning apparatus, determining a position to which a elongated member is to be moved relative to the positioning apparatus, moving the elongated member into the patient's body while the positioning apparatus is in engagement with the patient's body, positioning a magnet adjacent to a portion of the patient's body and promoting movement of a leading end portion of the elongated member into the patient's body under the influence of a magnetic field emanating from the magnet during movement of the elongated member into the patient's body, interrupting movement of the elongated member into the patient's body when the

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elongated member has moved to the previously determined position relative to the positioning apparatus, and performing a procedure in the patient's body while the elongated member is in the previously determined position relative to the patient's body.

233. (Original) A method as set forth in claim 225 wherein said step of moving the elongated member into the patient's body includes detecting when a leading end portion of the elongated member is in a position other than a desired position and applying force against the leading end portion of the elongated member to move the leading end portion of the elongated member toward the desired position.

234. (Original) A method as set forth in claim 225 further including the step of transmitting an image from a leading end portion of the elongated member to a location outside of the patient to facilitate visualization of tissue disposed in the patient's body adjacent to the leading end portion of the elongated member.

235. (Original) A method set forth in claim 225 further including the steps of providing a sensor assembly having an emitter portion which provides an output and a detector portion which responds to the output from the emitter portion, moving one of the emitter and detector portions of the sensor assembly into the patient's body with a leading end portion of the elongated member as the elongated member moves into the patient's body, positioning one of the emitter and detector portions of the sensor assembly adjacent to the portion of the patient's body engaged by the positioning apparatus, and determining when the leading end portion of the elongated member is in a desired position relative to the patient's body as a function of a response from the detector portion of the sensor assembly during movement of the elongated member into the patient's body.

236. (Original) A method as set forth in claim 235 wherein said step of moving one of the emitter and detector portions of the sensor assembly into the patient's body with the leading end

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portion of the elongated member includes moving the emitter portion of the sensor assembly into the patient's body with the leading end portion of the elongated member, said step of positioning one of the emitter and detector portions of the sensor assembly adjacent to the portion of the patient's body engaged by the positioning apparatus includes positioning the detector portion of the sensor assembly adjacent to the portion of the patient's body engaged by the positioning apparatus.

237. (Original) A method as set forth in claim 236 wherein said step of moving the emitter portion of the sensor assembly into the patient's body with the leading end portion of the elongated member includes moving a magnet into the patient's body with the leading end portion of the elongated member, said step of positioning the detector portion of the sensor assembly adjacent to the portion of the patient's body engaged by the positioning apparatus includes positioning a device which responds to a magnetic field adjacent to the patient's Adam's apple.

238. (Original) A method as set forth in claim 235 wherein said step of moving one of the emitter and detector portions of the sensor assembly into the patient's body with the leading end portion of the elongated member includes moving the detector portion of the sensor assembly into the patient's body with the leading end portion of the elongated member, said step of positioning one of the emitter and detector portions of the sensor assembly adjacent to the portion of the patient's body engaged by the positioning apparatus includes positioning the emitter portion of the sensor assembly adjacent to the portion of the patient's body engaged by the positioning apparatus.

239. (Original) A method as set forth in claim 238 wherein said step of moving the detector portion of the sensor assembly into the patient's body with the leading end portion of the elongated member includes moving a device which responds to magnetic fields into the patient's body with the leading end portion of the elongated member, said step of positioning the emitter portion of the sensor assembly adjacent to the portion of the patient's body includes positioning a

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magnet adjacent to the portion of the patient's body.

240. (Original) A method as set forth in claim 225 wherein said step of moving an elongated member into the patient's body includes moving a plurality of expandable elements into the patient's body with the elongated member and expanding at least one of the plurality of expandable elements as the leading end portion of the elongated member is moved relative to the patient's body.

241. (Original) A method as set forth in claim 225 wherein said step of moving the elongated member into the patient's body includes steering the leading end portion of the elongated member by expanding an expandable element connected with the leading end portion of the elongated member.

242. (Previously presented) A method of treating a patient, said method comprising the steps of locating a positioning apparatus relative to a portion of the patient's body by engaging the patient's body with the positioning apparatus, determining a position to which a elongated member is to be moved relative to the positioning apparatus, moving the elongated member into the patient's body while the positioning apparatus is in engagement with the patient's body, interrupting movement of the elongated member into the patient's body when the elongated member has moved to the previously determined position relative to the positioning apparatus, and performing a procedure in the patient's body while the elongated member is in the previously determined position relative to the patient's body, wherein said step of moving an elongated member into the patient's trachea includes moving a light source with the leading end portion of the elongated member and detecting when the light source is in a position corresponding to a desired position of the leading end portion of the elongated member by observing light emitted from the light source from outside of the patient's body.